Abstract

A method for examining a surface of a sample is described using an atomic force scanning microscope (AFM) comprising a cantilever with a longitudinal extension along which a measuring tip is disposed, which is selectively arranged relative to the sample surface by a means for driving and whose spatial position is detected using a sensor unit. Vibration excitation is conducted at excitation amplitudes which produce inside the cantilever torsional amplitudes with maximum values which form a largely (substantively) constant plateau value despite increasing excitation amplitudes and the resonance spectra, in a range of maximum values of the torsional amplitudes, a widening of the resonance spectrum which is determinable by a plateau width. The resonance spectra, preferably the plateau value, the plateau width and/or the gradient of the respective resonance spectra are used for examining the sample.